
6. APPLICABLE LAWS, REGULATIONS, AND OTHER REQUIREMENTS

Chapter 6 identifies the Federal and state statutes and regulations that require licenses, permits, or other requirements related to environmental protection, emergency planning, and worker safety and health. In addition, the chapter summarizes the U.S. Department of Energy's regulations and orders, as well as the regulatory compliance history of the three nuclear plants being considered for tritium production.

6.1 INTRODUCTION AND BACKGROUND

Like most nuclear activities, the production of tritium in a commercial reactor would be closely regulated to ensure the health and safety of the public, protect the environment, and guard employee health. Most of these regulatory requirements already apply to the operating Watts Bar Nuclear Plant Unit 1 (Watts Bar 1) and Sequoyah Nuclear Plant Units 1 and 2 (Sequoyah 1 and 2), and have been accounted for in the planning and partial construction of the incomplete Bellefonte Nuclear Plant Units 1 and 2 (Bellefonte 1 and 2). The addition of tritium production would necessitate few, if any, physical or substantive changes to current compliance plans and activities at the plants. The legal responsibility for continued U.S. Nuclear Regulatory Commission (NRC) regulatory compliance would remain with the Tennessee Valley Authority (TVA).

To ensure that individual facilities satisfy the established standards of nuclear safety and environmental protection, some of the applicable laws require the facilities to have licenses or permits. The most comprehensive of these are the operating licenses issued by the NRC under the Atomic Energy Act of 1954, as amended. Tritium production was not contemplated in the existing operating licenses for Watts Bar 1 and Sequoyah 1 and 2, or in the construction permit (the precursor to an operating license) for Bellefonte 1 and 2. The NRC would, therefore, have to review the tritium production proposal under established processes to amend the operating licenses for Watts Bar 1 and Sequoyah 1 and 2, and as part of the safety analysis and licensing review process associated with the construction of Bellefonte 1 and 2.

Permits for air pollution emissions and water pollution discharges are issued by the relevant state environmental agencies (the Alabama Department of Environmental Management and the Tennessee Department of Environment and Conservation) under state programs approved by the U.S. Environmental Protection Agency (EPA) pursuant to the Clean Air and Clean Water Acts. Continued compliance with the terms of these permits would be required. Based on the projections for air emissions and liquid effluents, no changes to the existing permits at Watts Bar or Sequoyah should be necessary. TVA has noted, however, that it ships all hazardous wastes to permitted offsite facility contractors; therefore, it does not need its own hazardous waste permits (TVA 1997d). Unless this practice changes as a result of tritium production, no new hazardous waste permits should be required. Each facility has a Hazardous Waste Generator Identification Number and a Special Waste Permit that would have to be transferred to the U.S. Department of Energy (DOE) if it were to purchase the reactors.

Some applicable laws, such as the National Environmental Policy Act (NEPA), the Endangered Species Act, and the Emergency Planning and Community Right-To-Know Act, require specific reports and/or consultations rather than ongoing permits or activities. These would be satisfied through the legal/regulatory process,

including the preparation of the *Environmental Impact Statement for the Production of Tritium in a Commercial Light Water Reactor* (CLWR EIS), leading to the proposed tritium production.

The other applicable laws establish general requirements that must be satisfied, but do not include processes (such as the issuance of permits or licenses) to consider compliance prior to specific instances of violations or other events that trigger their provisions. These include the Toxic Substances Control Act (affecting polychlorinated biphenyl transformers and other designated substances); the Federal Insecticide, Fungicide, and Rodenticide Act (affecting pesticide/herbicide applications); the Hazardous Materials Transportation Act; and (if there were to be a spill of a hazardous substance) the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund).

Finally, both TVA and DOE have their own internal requirements that would be applicable to the proposed production of tritium. Occupational safety and health programs constitute the most important internal requirements. The Occupational Safety and Health Act and the Department of Labor regulations established under it do not apply directly to government agencies (such as DOE) or government-owned corporations (such as TVA). However, both are required by statute (29 CFR 1910, 29 U.S.C. 668) and Executive Order 12196 to have their own programs to protect worker safety and health “consistent” with the Occupational Safety and Health Act’s standards. Radiological aspects of worker safety and health are governed through the NRC licensing process.

DOE also has numerous requirements that are set forth in DOE Orders to ensure its activities provide general protection of health, safety, and the environment. Most of these, however, do not apply to activities at non-DOE facilities (such as DOE production of tritium in TVA reactors).

Section 6.2 of this chapter discusses the major Federal and state statutes and regulations that impose nuclear safety and environmental protection requirements on the subject facilities, and that might require the reactor facility to obtain a permit or license, or amendment thereof, prior to tritium production. Each of the applicable regulations and statutes establishes how potential releases of pollutants and radioactive materials are to be controlled or monitored. These applicable regulations and statutes include requirements for the issuance of permits or licenses for new operations or new emission sources and for amendments to existing permits or licenses to allow new types of operations at existing sources. In addition to nuclear and environmental license and permit requirements, the regulations and statutes may require consultations with various authorities to determine whether an action requires a permit to be obtained or amended, or whether protective or mitigative measures relative to the action’s effect on cultural, natural, or biological resources need to be implemented. Sections 6.2.1 and 6.2.2 discuss the nuclear and environmental licensing and permitting processes, respectively, and list the licenses and permits applicable to tritium production in the subject facilities.

Section 6.3 addresses other general requirements regarding environmental protection, emergency planning, and worker safety and health. Section 6.4 discusses the DOE regulations and Orders that pertain to DOE activities.

6.2 STATUTES AND REGULATIONS REQUIRING LICENSES OR PERMITS

The Atomic Energy Act of 1954, as amended by the Energy Reorganization Act of 1974, gives NRC jurisdiction over the construction and operation of commercial nuclear reactors (including those of TVA) and over the possession, use, transportation, and disposal of radioactive materials (including wastes). The NRC carries out this role by applying extensive regulations and performance standards to specific facilities and operations through a required licensing process. Although most DOE facilities and operations are not subject to NRC jurisdiction, the proposed tritium production services provided to DOE by TVA would be subject to the NRC regulations and license requirements governing TVA.

Federal and state environmental laws establish standards for radiation exposure in the general environment (i.e., everything outside NRC- or DOE-regulated facilities) and for sources of air pollution, water pollution, and hazardous waste. Some of these standards are applied to specific facilities and operations through required permits. To obtain these permits, the facility operator (in the present case, TVA) must submit construction and operation plans and specifications for new or modified sources of pollutants for review by the appropriate government agencies. The environmental permits: (1) contain specific conditions governing construction and operation of a new or modified emission source; (2) describe pollution abatement and prevention methods to reduce pollutants; and (3) contain emission limits for the pollutants that will be emitted from the facility. Section 6.2.2 discusses the environmental regulations and statutes under which new or amended permits may be required for tritium production at the candidate facilities.

6.2.1 Nuclear Regulatory Commission Permits and Licenses

Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*, as amended) (10 CFR 50)

The Atomic Energy Act, as amended, requires entities that operate nuclear power plants, such as TVA, to have a plant license issued by the NRC. The NRC regulations that implement this requirement provide for permits to be issued for the construction or alteration of such facilities. Operating licenses are applied for after completion of the construction or alteration of the facilities (10 CFR Sections 50.23, 50.56, 50.57). Construction permits and operating licenses include detailed provisions regarding their duration and the design, safety, and quality assurance requirements for the subject facilities (10 CFR Sections 50.54, 50.55).

Permits and licensing for completion of the Bellefonte 1 and 2 reactors for tritium and electricity production will be addressed as part of the NRC's consideration of TVA's operating license application. To address tritium production, TVA will be required to apply to the NRC for appropriate amendments to its operating license application for Bellefonte 1 and 2, or to its existing operating licenses for the Watts Bar 1 and Sequoyah 1 and 2 reactors. The NRC must grant Bellefonte 1 an operating license before it can produce tritium, and the NRC must approve TVA's license amendments for Watts Bar 1 and Sequoyah 1 and 2 before those plants can produce tritium.

Regulatory Limits of Radiation Exposure (10 CFR 50, Appendix I, 10 CFR 20)

Limits of exposure to members of the public and radiation workers are based on International Commission on Radiological Protection recommendations. Each country's regulatory organization adopts the International Commission on Radiological Protection's recommendations and sets specific annual exposure limits. For nuclear facilities in the United States, annual exposure limits to the public and radiation workers are established by the NRC in 10 CFR 20 (Standards for Protection Against Radiation) and 10 CFR, Appendix I (Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion, "As Low as is Reasonably Achievable," for radioactive material in light-water-cooled nuclear power reactor effluents).

6.2.2 Environmental Protection Permits

Clean Air Act, as amended, and EPA regulations thereunder (42 U.S.C. 7401 *et seq.*), (40 CFR 50-99); Tennessee Air Quality Act and regulations thereunder (Title 68 Tennessee Code Chapter 201); Alabama Air Pollution Control Act and regulations thereunder (Title 22 Alabama Code Chapter 28); air pollution ordinances of the relevant municipal and county governments

The Clean Air Act, as amended, is intended to "protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productive capacity of its population." Section 118 of the Clean Air Act, as amended, requires each Federal agency (including TVA and DOE) with jurisdiction over

any property or facility that might result in the discharge of air pollutants to comply with “all Federal, state, interstate, and local requirements” with regard to the control and abatement of air pollution.

The Act requires EPA to establish National Ambient Air Quality Standards as necessary to protect public health and welfare with an adequate margin of safety from any known or anticipated adverse effects of a regulated pollutant (42 U.S.C. 7409). The Act also requires the establishment of national standards of performance for new or modified stationary sources of atmospheric pollutants (42 U.S.C. 7411 and 7412) and requires specific emission increases to be evaluated to prevent a significant deterioration in air quality (42 U.S.C. 7470 *et seq.*). Air emissions are regulated by the EPA in 40 CFR Parts 50 through 99. Hazardous air pollutants, including radionuclide emissions from Federal facilities, are regulated under the National Emission Standards for Hazardous Air Pollutants Program (40 CFR 61).

These national standards are implemented by states that have an air pollution control program approved by the EPA. In Tennessee, the program is administered by the State Department of Environment and Conservation under the State Air Quality Act (Title 68 Tennessee Code Chapter 201). In Alabama, the program is administered by the State Department of Environmental Management under the Alabama Air Pollution Control Act (Title 22 Alabama Code Chapter 28). The National Emission Standards for Hazardous Air Pollutants Programs standards for radionuclides (40 CFR 61, Subparts H and I) are not applicable to NRC-licensed facilities such as TVA reactors. As cited in EPA’s Final Rule (60 FR 46206), compliance with NRC regulations constitutes compliance with 40 CFR 61, Subparts H and I. As indicated in Chapter 5, the radiation exposure of the public would be well within the regulatory limits.

The U.S. Environmental Protection Agency also establishes standards for radiation protection for members of the public in the general environment and for radioactive materials introduced into the general environment as the result of operations that are a part of a nuclear fuel cycle. These standards are found in 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operations. TVA reactors are subject to these standards.

Federal Clean Water Act, as amended (33 U.S.C. 1251 *et seq.*); Tennessee Water Quality Act (Title 69 Tennessee Code Chapter 3) and regulations thereunder (regulations Chapter 1200-4); Alabama Water Pollution Control Act (Title 22 Alabama Code Chapter 22)

The Federal Water Pollution Act (commonly known as the Clean Water Act) was enacted to “restore and maintain the chemical, physical, and biological integrity of the nation’s water.” The Clean Water Act prohibits the “discharge of toxic pollutants in toxic amounts” to navigable waters of the United States (Section 101). Section 313 of the Clean Water Act, as amended, requires all branches of the Federal Government engaged in any activity that might result in a discharge or runoff of pollutants to surface waters to comply with Federal, state, interstate, and local requirements.

In addition to setting water quality standards for the nation’s waterways, the Clean Water Act supplies guidelines and limitations (Sections 301-303) for effluent discharges from point-source discharges and provides authority (Sections 401-402) for the EPA to implement the National Pollutant Discharge Elimination System (NPDES) permitting program pursuant to 40 CFR 122 and subsequent revisions.

EPA has delegated primary enforcement authority for the Clean Water Act and the NPDES permitting program to the States of Tennessee and Alabama for the waters therein.

Federal Safe Drinking Water Act, as amended [42 U.S.C. 300f *et seq.*, 40 CFR 41-149]; Tennessee Safe Drinking Water Act (Title 68 Tennessee Code Chapter 221); Alabama Water Pollution Control Act (22 Alabama Code Chapter 22)

The primary objective of the Safe Drinking Water Act, as amended (42 U.S.C. 300f *et seq.*), is to protect the quality of the public water supplies and all sources of drinking water. The implementing regulations, administered by the EPA unless delegated to the states, establish standards applicable to public water systems. They promulgate maximum contaminant levels (including those for radioactivity) in public water systems, which are defined as water systems that serve at least 15 service connections used by year-round residents or that regularly serve at least 25 year-round residents. Safe Drinking Water Act requirements have been promulgated by the EPA in 40 CFR 100-149; for tritium, a concentration limit of 20,000 picocuries per liter has been established per 40 CFR 141.16. As indicated in Chapter 5, the tritium concentration would remain well below the regulatory limits.

The Resource Conservation and Recovery Act and its Hazardous and Solid Waste Amendments of 1984 (42 U.S.C. 6901 *et seq.*); Tennessee Hazardous Waste Management Act (Title 68 Tennessee Code Chapter 212); Alabama Hazardous Waste Management and Minimization Act (22 Alabama Code Chapter 30)

The treatment, storage, and/or disposal of hazardous and nonhazardous waste is governed by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. Pursuant to Section 3006 of the Act, any state that seeks to administer and enforce a hazardous waste program pursuant to the Resource Conservation and Recovery Act may apply for EPA authorization of its program. Tennessee and Alabama have such authorization. EPA regulations implementing the Resource Conservation and Recovery Act (40 CFR 260-280) define hazardous wastes and specify hazardous waste transportation, handling, treatment, storage, disposal, record keeping, and reporting requirements. The regulations imposed on a generator or a treatment, storage, or disposal facility vary according to the type and quantity of material or waste generated, treated, stored, or disposed. The method of treatment, storage, or disposal also affects the extent and complexity of the requirements. These regulations require that facilities obtain a Resource Conservation and Recovery Act permit if they store hazardous waste on site more than 90 days (for large quantity generators) or 180 days (for small quantity generators) or treat hazardous waste. TVA has stated that it does not store waste beyond the periods allowed for hazardous waste generators or conduct treatment of hazardous wastes that require a Resource Conservation and Recovery Act permit at its nuclear facilities; therefore, TVA does not have Resource Conservation and Recovery Act permits for those facilities. Each facility does have an EPA/state Hazardous Waste Generator identification number and files the documents required for the generation of hazardous waste.

The Resource Conservation and Recovery Act does not apply to radioactive waste. However, the courts have held that it does apply to the hazardous (i.e., nonradioactive) component of mixed hazardous and radioactive wastes in *Legal Environmental Assistance Foundation (L.E.A.F.) versus Hodel*.

Federal Facility Compliance Act (42 U.S.C. 6961)

The Federal Facility Compliance Act, enacted on October 6, 1992, amended the Resource Conservation and Recovery Act. The Federal Facility Compliance Act waived sovereign immunity from fines and penalties for violations at the facilities of Federal agencies (including government-owned corporations such as TVA) associated with the management of mixed waste. However, TVA has stated in its submissions for Watts Bar 1 and Bellefonte 1 and 2 that it does not store hazardous waste at any of its nuclear facilities.

6.3 OTHER REQUIREMENTS RELATED TO ENVIRONMENTAL PROTECTION, EMERGENCY PLANNING, AND WORKER SAFETY AND HEALTH

6.3.1 Environmental Protection

National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*); DOE Order 451.1A.

NEPA establishes a national policy promoting awareness of the environmental consequences of human activity on the environment and consideration of environmental impacts during the planning and decisionmaking stages of a project. This Act requires Federal agencies to prepare a detailed statement on the environmental effects of proposed major Federal actions that might significantly affect the quality of the human environment.

This EIS has been prepared in response to NEPA requirements and policies and in accordance with the Council on Environmental Quality (40 CFR 1500-1508), DOE (10 CFR 1021, DOE Order 451.1A), and TVA provisions for implementing the procedural requirements of NEPA. It discusses reasonable alternatives and their potential environmental consequences.

Executive Order 11514 (Protection and Enhancement of Environmental Quality); (40 CFR 1500-1508)

Executive Order 11514 (regulated by 40 CFR 1500-1508) requires Federal agencies to monitor and control their activities continually to: (1) protect and enhance the quality of the environment, and (2) develop procedures to ensure the fullest practicable provision of timely public information and understanding of Federal plans and programs that may have potential environmental impacts so that the views of interested parties can be obtained.

Executive Order 11988 (Floodplain Management); (10 CFR 1022); (18 CFR 725)

Executive Order 11988 (regulated by 10 CFR 1022 and 18 CFR 725) requires Federal agencies to establish procedures to ensure that the potential effects of flood hazards and floodplain management are considered for any action undertaken in a floodplain, and that floodplain impacts be avoided to the extent practicable. The production of tritium in the subject TVA facilities would not require further consideration of this Executive Order.

Executive Order 11990 (Protection of Wetlands); (10 CFR 1022); (18 CFR 725)

Executive Order 11990 (regulated by 10 CFR 1022 and 18 CFR 725) requires Federal agencies to avoid any short- and long-term adverse impacts on wetlands wherever there is a practicable alternative. The production of tritium in the subject TVA facilities would not require further consideration of this Executive Order.

Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*)

The Endangered Species Act prohibits Federal actions that might harm a listed endangered species or designated critical habitat, unless a special exemption is granted. Consultation with the U.S. Fish and Wildlife Service of the U.S. Department of Interior is required whenever a proposed action is likely to affect a listed species or critical habitat (50 CFR 17). Preparation of a biological assessment of potential effects on listed species is also required for Federal actions that are “major construction activities.” As discussed in Sections 5.2.1.6, 5.2.2.6 and 5.2.3.6, the consultation process between TVA and the U.S. Fish and Wildlife Service of the U.S. Department of Interior has been completed for all three candidate sites at Watts Bar, Sequoyah, and Bellefonte (DOI 1998a, DOI 1998c, DOI 1998d).

National Historic Preservation Act of 1966 (16 U.S.C. 470 *et seq.*)

This Act provides that sites with significant national historic value be placed on the *National Register of Historic Places* maintained by the Secretary of the Interior. No permits or certifications are required under the Act. However, if a particular Federal activity may impact a historic property resource, consultation with the Advisory Council on Historic Preservation is required by 16 U.S.C. 470f. The National Historic Preservation Act provides for an expanded National Register and establishes the Advisory Council on Historic Preservation (36 CFR 800.3, Section 106). Section 110 of the Act requires Federal agencies to identify, evaluate, inventory, and protect National Register resources on properties they control. Such consultation usually generates a Memorandum of Agreement that includes stipulations that must be followed to minimize adverse impacts. Coordination with the State Historic Preservation Officer also is done to ensure that potentially significant sites are properly identified and appropriate mitigative actions are implemented. It should be noted that the Tennessee State Historic Preservation Office has reviewed the Draft EIS and concluded that the proposed action at Watts Bar and Sequoyah would have no effect upon properties listed or eligible for listing with the *National Register of Historic Places* (TN DC 1998b).

Pollution Prevention Act of 1990 (42 U.S.C. 13101 *et seq.*)

The Pollution Prevention Act of 1990 establishes a national policy for waste management and pollution control that focuses first on source reduction, followed sequentially by environmentally safe recycling, treatment, and disposal. Disposal or releases to the environment should occur only as a last resort. In response, DOE has committed to participation in the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) Amendments and Reauthorization Act Section 313, U.S. EPA 33/50 Pollution Prevention Program. The goal for facilities already involved in Section 313 compliance was to achieve by 1997 a 33-percent reduction in the release of 17 priority chemicals from a 1993 baseline. On August 3, 1993, President Clinton issued Executive Order 12856, expanding the 33/50 program such that DOE must reduce its total release of all toxic chemicals by 50 percent by December 31, 1999. The Order applies to all Federal agencies (such as DOE) and government-owned corporations (such as TVA).

Comprehensive Guideline for Procurement of Products Containing Recovered Materials (40 CFR 247)

This regulation was issued under the authority of Section 6002 of the Resource Conservation and Recovery Act and Executive Order 12873, which set forth requirements for Federal agencies (including government-owned corporations) to procure products containing recovered materials for use in their operations according to EPA guidelines. The purpose of these regulations is to promote recycling by using government purchasing to expand markets for recovered materials. Resource Conservation and Recovery Act Section 6002 requires that any purchasing agency, when using appropriated funds to procure an item, must purchase it with the highest practicable percentage of recovered materials. The procurement of materials to be utilized in the tritium production program should be conducted in accordance with these regulations.

Executive Order 12856 (Right-to-Know Laws and Pollution Prevention Requirements)

Executive Order 12856 requires all Federal agencies to reduce the toxic chemicals entering any waste stream. This Order also requires Federal agencies to report toxic chemicals entering waste streams; improve emergency planning, response, and accident notification; and encourage clean technologies and testing of innovative prevention technologies.

Executive Order 12898 (Environmental Justice)

Executive Order 12898 requires Federal agencies to identify and address any disproportionately high, adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Chapter 5 and Appendix G of this EIS discuss Environmental Justice.

Executive Order 12902 (Energy Efficiency and Water Conservation at Federal Facilities)

Executive Order 12902 requires Federal agencies to develop and implement a program for conservation of energy and water resources.

6.3.2 Emergency Planning and Response

This section discusses laws that address the protection of public health and worker safety and require the establishment of emergency plans; coordination with local and Federal agencies is also covered. These laws relate to the operation of facilities, such as nuclear reactors, that engage directly or indirectly in the production of special nuclear material.

| Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release (10 CFR 30.72 Schedule C)

| This list determines the need for emergency response plans for unscheduled releases of radiological materials at all NRC-regulated facilities.

Commercial Nuclear Power Plant Emergency Preparedness Planning (44 CFR 352)

These regulations generally establish the policies, procedures, and responsibilities of the Federal Emergency Management Agency, the NRC, and DOE as guidance for implementing a Federal Emergency Preparedness Program.

Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 11001 *et seq.*) (also known as “SARA Title III”)

| The Emergency Planning and Community Right-to-Know Act of 1986 requires emergency planning and notice to communities and government agencies of the presence and release of specific chemicals. EPA implements this Act under regulations found in 40 CFR 355, 370, and 372. Under Subtitle A of this Act, Federal facilities (including those of government-owned corporations such as TVA) provide information (such as inventories of specific chemicals used or stored and any releases that occur) to the State Emergency Response Commission and the Local Emergency Planning Committee to ensure that emergency plans are sufficient to respond to unplanned releases of hazardous substances.

Transportation of Hazardous Materials (49 U.S.C. 5101 *et seq.*); Hazardous Materials Tables & Communications, Emergency Response Information Requirements (49 CFR 172)

The regulatory requirements for marking, labeling, placarding, and documenting hazardous material shipments are defined in these regulations. Requirements for providing hazardous material information and training also are specified. Materials shipped to and from the subject facilities would be required to comply with these regulations.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. 9601 *et seq.*); National Oil and Hazardous Substance Contingency Plan (40 CFR 300)

More popularly known as “Superfund,” the Act and the implementing regulations provide the needed general authority for Federal and state governments to respond directly to hazardous substance incidents. The regulations require reporting spills of hazardous substances to the National Response Center of EPA, including (in the limited circumstances specified in 40 CFR 302.6(b)(2)) radionuclides specified in 40 CFR 302.4. Tritium production operations would be required to comply with these regulations if a hazardous substance spill occurred.

6.3.3 Worker Safety and Health

Occupational Safety and Health Act of 1970, as amended (29 U.S.C. 651 *et seq.*); Occupational Safety and Health Administration Emergency Response, Hazardous Waste Operations, and Worker Right to Know (29 CFR 1910)

The Occupational Safety and Health Act (29 U.S.C 651) establishes standards to enhance safe, healthy working conditions in places of employment throughout the United States. The Act is administered and enforced by the Occupational Safety and Health Administration, a U.S. Department of Labor agency. While the Occupational Safety and Health Administration and EPA both have a mandate to reduce exposure to toxic substances, the Occupational Safety and Health Administration's jurisdiction is limited to safety and health conditions that exist in the workplace environment. In general, under Occupational Safety and Health Act, it is the duty of each employer to furnish all employees a place of employment that is free of recognized hazards that are likely to cause death or serious physical harm. Employees have a duty to comply with the occupational safety and health standards and all Occupational Safety and Health Act-related rules, regulations, and orders. The Occupational Safety and Health Administration's regulations (29 CFR) establish specific standards that tell employers what must be done to achieve a safe, healthy working environment. These regulations set down the Occupational Safety and Health Administration's requirements for employee safety in a variety of working environments, including employee emergency and fire prevention plans (29 CFR 1910.38), hazardous waste operations and emergency response (29 CFR 1910.120), and hazards communication (29 CFR 1910.1200) to increase employee awareness of the dangers they face from hazardous materials at their workplace.

Occupational Safety and Health Act and the regulations thereunder do not directly apply to Federal agencies or government-owned corporations. However, Section 19 of Occupational Safety and Health Act (29 U.S.C. 668) requires all Federal agencies to have occupational safety programs "consistent" with Occupational Safety and Health Act standards. This requirement has been applied to government-owned corporations, as well as agencies, through 5 U.S.C. 7902 and Executive Order 12196.

Radiological protection for employees of NRC-licensed facilities is regulated by the NRC. DOE Order 440.1, "Worker Protection Management for DOE Federal and Contractor Employees," also applies at all DOE facilities, even if they are also regulated by the NRC. This Order will not apply to the TVA facilities, since TVA will not be a DOE contractor.

6.4 DOE REGULATIONS AND ORDERS

The Atomic Energy Act makes DOE responsible for establishing a comprehensive health, safety, and environmental program for its activities. DOE carries out this responsibility through the promulgation of regulations (set forth in 10 CFR 830) and the issuance of DOE Orders. The DOE regulations, however, do not apply to activities regulated by the NRC (see 10 CFR 830.2(a), 835.1(b)). Thus, the DOE regulations would not apply to tritium production at the TVA reactors.

6.5 COMPLIANCE HISTORY

This CLWR EIS considered three nuclear facilities for tritium production: Watts Bar 1; Sequoyah 1 and 2; and Bellefonte 1 and 2. A description is provided of each facility's performance in the following areas: (1) compliance with NRC regulations; (2) compliance with environmental and nonnuclear safety regulations; (3) NRC Performance Indicators; and (4) Systematic Assessments of Licensee Performance. The assessment is based on the following information sources:

- Information submitted by TVA in response to DOE's request for proposal

- NRC documentation, including Systematic Assessments of Licensee Performance reports, transcripts of Commission briefings, and summaries of Notices of Violation
- Review of Industry Performance Indicators compiled by NRC

6.5.1 Compliance Indicators

The purpose of this section is not for DOE to assess the adequacy of TVA's operation of its CLWRs. Such an assessment is the responsibility of NRC. The information contained in this section provides a basis for DOE to assess whether there are any compliance issues that would interfere with the production of tritium or create a potentially significant environmental impact. Three selected compliance indicators used to describe TVA's compliance history are: (1) Systematic Assessment of Licensee Performance; (2) enforcement actions; and (3) performance indicators.

6.5.1.1 Systematic Assessments of Licensee Performance

of the NRC's evaluation tools, the Systematic Assessments of Licensee Performance Program, has been used to characterize this compliance performance. The Systematic Assessments of Licensee Performance Program is an integrated effort by the NRC to collect and evaluate observations and data to assess and better understand the reasons for a licensee's performance. The program was started in the early 1980s. The Systematic Assessments of Licensee Performance evaluation is based on a compilation of the NRC staff's regulatory experience with the plant over an extended period of time. Normally, the Systematic Assessments of Licensee Performance Program covers about 18 months. This period can be extended to 24 months for plants that are performing well and can be reduced to about 12 months for poorer performers.

Each plant is rated in four functional areas: plant operations, maintenance, engineering, and plant support. Each functional area is assigned a rating of 1, 2, or 3. The "1" rating represents a superior level of safety performance that may support a reduced NRC inspection effort. A "2" rating reflects a good level of performance. A rating of "3" designates an acceptable level of performance where the NRC will consider increased inspection efforts.

6.5.1.2 NRC Notices of Violations and Enforcement Actions

The review of each facility's NRC enforcement history also presents an overview of day-to-day compliance with NRC regulations. The NRC's Enforcement Program seeks to protect public health and safety by ensuring compliance with NRC regulations and license conditions; obtaining prompt correction of violations and conditions adverse to quality; deterring future violations; and encouraging improvement of licensee performance.

Violations are identified through inspections and investigations. There are three primary enforcement sanctions available: Notices of Violation, civil penalties, and orders.

- A Notice of Violation summarizes the results of an inspection and formalizes a violation. Severity levels for Notices of Violation of NRC regulations range from Severity Level I, for the most significant violations, to Severity Level IV for those of more minor concern.
- A civil penalty is a monetary fine issued under the authority of the Atomic Energy Act. Civil penalties may be assessed up to \$110,000 per violation per day. Notices of Violation and civil penalties are issued based on violations.
- Orders may be issued for violations, or in the absence of a violation, because of a public health and safety issue.

6.5.1.3 Performance Indicators

Performance Indicators for Operating Commercial Nuclear Power Reactors (NRC 1998b) was most recently issued in December 1997. This document contains data through September 1997 for 109 commercial power reactors. The information focuses on eight performance indicators using information that was submitted by the reactor operators in Licensee Event Reports, monthly operating reports, and information provided by the Institute of Nuclear Power Operations. The information is grouped in “Peer Groups” to provide a useful perspective to evaluate a unit’s performance against reactors of similar operating history, age, and manufacturer. Also, performance indicator data were categorized by similar data to be characterized as a Peer Group. Plants were categorized by Nuclear Steam Supply System vendor, product line, generating capacity, and licensing date. The following are the Peer Group categories listed under *Performance Indicators for Operating Commercial Nuclear Power Reactors* (NRC 1998b):

- Pre-Three Mile Island General Electric Plants
- Post-Three Mile Island General Electric Plants
- Babcock and Wilcox Plants
- Combustion Engineering Plants without Core Protection Calculators
- Combustion Engineering Plants with Core Protection Calculators
- Westinghouse 2-Loop and Small 3- and 4-Loop Plants
- Westinghouse Older 3-Loop Plants
- Westinghouse New 3- and 4-Loop Plants
- Westinghouse Older 4-Loop Plants
- All New Plants Since 1/1/87

6.5.2 Watts Bar 1

Watts Bar 1 started commercial power operations in 1996. The compliance review includes an overview of the plant’s regulatory performance from the latter stages of construction through current operations.

6.5.2.1 NRC Performance

NRC Overview

In discussing the compliance history in a September 1995 Commission briefing (NRC 1995d), the NRC staff indicated that it had applied “unprecedented NRC inspection resources” to Watts Bar 1 to ensure that the systemic problems that created design and construction concerns in the pre-1985 time frame were effectively addressed by TVA as it completed construction and prepared the plant equipment, systems, and staff for full power operations. Stewart Ebnetter, NRC Region II Administrator noted, “I believe we have inspected Watts Bar 1 more than any other plant...I think this one is the most inspected plant.” These inspections provided the NRC an effective forum to review all aspects of the construction, testing, and operation of Watts Bar 1 prior to approval of the Operating License in 1996. In a July 1995 Commission briefing (NRC 1995c), John S. Jaudon, NRC Deputy Director, Division of Reactor Safety, Region II, characterized TVA’s performance by saying, “Our inspections indicate that TVA performance on the site has been generally good since the fall of 1994.”

This theme was reiterated in the September 1995 Commission briefing as NRC management reviewed the results of recent testing at Watts Bar 1 and summarized the progress of preparing Watts Bar 1 for operation (NRC 1995d).

Systematic Assessments of Licensee Performance Evaluations

Watts Bar 1 operations have been evaluated by the NRC in two Systematic Assessments of Licensee Performance inspections (NRC 1996c, NRC 1998a). As summarized in **Table 6–1**, Watts Bar 1 has an average Systematic Assessment of Licensee Performance score of 1.25 for these two evaluations (see Section 6.5.1.1).

Table 6–1 Systematic Assessments of Licensee Performance Results for the Watts Bar Nuclear Power Plant

<i>Review Period</i>	<i>Plant Operations</i>	<i>Maintenance</i>	<i>Engineering</i>	<i>Plant Support</i>
November 1995 to November 1996	2	1	1	1
November 1996 to December 1997	2	1	1	1

The NRC’s January 1998 Systematic Assessment of Licensee Performance report for the period from November 1996 to December 1997 (NRC 1998a) characterized the engineering, maintenance, and plant support functional areas as “superior.” However, the report indicated that, “configuration control of plant equipment remained problematic...component mispositions by nonlicensed operators continued to occur, including examples found by the NRC which rendered safety equipment inoperable.” These issues are being addressed by the NRC.

NRC Notices of Violation and Enforcement Actions

TVA’s compliance information (TVA 1997e, NRC 1998f), which was submitted in response to DOE’s request for proposal, identified the following NRC Notices of Violation issued during the latter stages of construction:

- 1992 - 15 Level IV violations
- 1993 - 3 Level II violations with civil penalty of \$100,000 and 46 Level IV violations
- 1994 - 50 Level IV violations
- 1995 - 25 Level IV violations

TVA’s compliance information for Watts Bar 1 (TVA 1997e) indicates that there were 35 Level IV violations, and 1 Level II violation with a civil penalty of \$80,000 (this penalty was withdrawn in April 1998) during the period from initial operation in 1996 through 1997. These enforcement actions are summarized below:

Civil Penalties - Watts Bar 1

NRC Notices of Violation for Watts Bar 1 were found dating back to 1988. There have been no further violations since 1992, except for one civil penalty notice in combination with the Sequoyah Nuclear Plant. This penalty was withdrawn in April 1998. The Sequoyah/Watts Bar Nuclear Plants received Level I and Level II Notices of Violation that proposed imposition of civil penalties regarding alleged acts of discrimination in violation of 10 CFR 50.7. These Notices of Violation dated back to 1988 on different discrimination act charges that totaled \$200,000 in civil penalties. Twenty-six cases noted in the NRC letters of January 20 and 25, 1993, included: (1) two cases in which the final order of the Secretary of Labor determined that discrimination was a factor in the actions taken against the employees, (2) 13 cases that were conciliated after an initial U.S. Department of Labor determination of discrimination, and (3) 11 cases that were conciliated before an initial determination of discrimination by the U.S. Department of Labor (NRC 1998f). Payment of these civil penalties was made by wire transfer on January 26, 1994.

The Level IV violations have been found to fit in the following categories as stated: lack of site standard practices; failure to meet code requirements; deficiencies in quality control; improper work instructions; deficiencies in procedures; failure to establish adequate measures to assure that materials conformed to requirements; failure to train personnel properly; drawing errors; inadequate design control; failure to distribute agenda; design and construction practices; and failure to adequately control and secure safeguards. The overview of all Notices of Violation at this level fit into two classifications: a lack of management control and procedural interpretation (NRC 1998f).

Performance Indicators

Performance Indicators for Operating Commercial Nuclear Power Reactors (NRC 1998b) presents performance indicator information for Watts Bar 1 using a peer group defined as “All New Plants Since 1/1/87.” Accordingly, the data presented in *Performance Indicators for Operating Commercial Nuclear Power Reactors* were reviewed for the six (of eight) performance indicators that address operational activities. The following data characterizes Watts Bar 1 performance since the second quarter of 1996 in these categories:

- *Automatic Scrams While Critical* [An automatic scram is a reactor shutdown that has been initiated by the plant’s safety systems.] The industry average for this indicator was less than 0.3 scrams per quarter. Watts Bar 1’s performance included four quarters with no automatic scrams, one quarter with one automatic scram, and two quarters with two scrams, for an average of 0.7 scrams per quarter.
- *Safety System Actuations* The industry average for this indicator was approximately 0.005 actuations per quarter. Watts Bar 1’s performance included six quarters with no actuations, and one quarter with three actuations (two occurring with the reactor operating and one with the reactor shut down), for an average of 0.14 actuations per quarter.
- *Significant Events* The industry average for this indicator was approximately zero significant events per quarter, which equaled Watts Bar 1’s performance of no significant events through seven quarters.
- *Safety System Failures* The industry average for this indicator was approximately 0.5 failures per quarter. Watts Bar 1’s performance included three quarters with no failures, three quarters with one failure per quarter (all during operation), and one quarter with two failures (both with the reactor shut down), for an average of 0.7 failures per quarter.
- *Forced Outage Rate* The industry average for this indicator was less than a 20 percent forced outage rate per quarter. Watts Bar 1’s performance included three quarters with no forced outages, one quarter with a 1 percent forced outage rate, one quarter with a 2 percent forced outage rate, and one quarter with an 18 percent forced outage rate.
- *Equipment Forced Outages* The industry quarterly average for this indicator was approximately 0.2 equipment forced outages per 1,000 commercial critical hours. Watts Bar 1’s performance included four quarters with no outages resulting from equipment problems, one quarter with a rate of 1.5 outages per 1,000 commercial critical hours, and one quarter with a rate of 1.65 outages per 1,000 commercial critical hours.

Also, a review of performance indicator criteria addressed Collective Radiation Exposure, which is the total radiation dose accumulated by unit personnel. The industry average for this indicator was less than 50 person-rem per quarter. The performance of Watts Bar 1 was only reported in the *Performance Indicators for Operating Commercial Nuclear Power Reactors* (NRC 1998b) for two quarters with values of 3 person-rem per quarter.

6.5.2.2 Environmental, Safety & Health (Nonnuclear) Performance

Occupational Safety and Health Act Compliance/Worker Safety Performance

As noted in TVA's summary of its Occupational Safety and Health Act performance indicators for the period from 1992 through mid-1997 (TVA 1997e), both the recordable injury rate and the lost-time injury rate are below the rates reported by the industry in general and specifically for the electric industry. This reflects performance from 1992 to 1995, when Watts Bar 1 was completing construction, system testing, and related startup activities. Similarly, 1996 to mid-1997 was a period in which facility staff were transitioning from a construction phase to a power generation phase (i.e., reactor and operating systems were energized and potentially radioactive, and discipline in all phases of facility operations was critical).

Environmental Performance

As noted in their submittal (TVA 1997e), Watts Bar 1 had no Notices of Violation from 1992 through 1994, only one in 1995, and again one in 1996. None were received in the first seven months of 1997. The 1995 and 1996 Notices of Violation involved the following violations:

- 1995 Notice of Violation - Auxiliary boiler operating hours exceeded limit in air permit
- 1996 Notice of Violation - Unmonitored release from yard pond in sewage treatment plant effluent stream

6.5.3 Sequoyah 1 and Sequoyah 2

6.5.3.1 NRC Performance

NRC Overview

Sequoyah 1 and 2 initially achieved commercial operation in July 1981 and June 1982, respectively. The regulatory history of these plants includes the following:

- In 1985, TVA voluntarily shut down five reactors (including Sequoyah 1 and 2) because of charges of mismanagement and inattention to safety requirements. Sequoyah 2 was the first of the shut-down units to be returned to operation in mid-1988 (TVA 1997e).
- The NRC added the Sequoyah Nuclear Plant to its "watch list" as a result of the 1985 shutdown. (The NRC's Watch List identifies power plants that require additional regulatory oversight because of declining performance. Once placed on the "watch list," a plant must demonstrate consistent improved performance before it is removed from the list.) Both Sequoyah 1 and Sequoyah 2 were removed from this list in 1989 (TVA 1997e).
- A reactor trip (i.e., automatic reactor shutdown) at Sequoyah 1 in March 1993 identified a problem with piping that resulted in the shutdown of both units. Sequoyah 2 was restarted in October 1993, and Sequoyah 1 was restarted after completion of a refueling outage.

Systematic Assessment of Licensee Performance Evaluations

A review of the most recent evaluations was conducted to determine the facility's current regulatory stature, as described in the NRC's Systematic Assessments of Licensee Performance inspections (NRC 1995a, NRC 1996b). As summarized in **Table 6-2**, the Sequoyah Nuclear Plant has an average Systematic Assessments of Licensee Performance score of around 2.0. These scores and the associated assessments by the NRC characterized the overall performance of Sequoyah 1 and 2 as "good."

Table 6–2 Systematic Assessments of Licensee Performance Results for the Sequoyah Nuclear Power Plant

<i>Review Period</i>	<i>Plant Operations</i>	<i>Maintenance</i>	<i>Engineering</i>	<i>Plant Support</i>
August 1992 to October 1993	3	3	2	1
October 1993 to January 1995	2	2	2	2
January 1995 to July 1996	2	2	2	2
July 1996 to February 1998	2	2	2	1

As noted in the Systematic Assessments of Licensee Performance reports, the NRC has acknowledged that progress and improvements have been made in many areas. However, additional improvements are warranted and expected in the remaining areas. Two examples of the NRC’s comments in the recent Systematic Assessments of Licensee Performance reports are provided below.

The February 1995 Systematic Assessments of Licensee Performance reports for October 1993 to January 1995 (NRC 1995a) summarized the NRC’s findings as:

“Performance improved in the Operations and Maintenance functional areas, and remained the same in the Engineering functional area. However, emerging problems and operational occurrences continued to require reactive organizational responses. Performance declined in the Plant Support functional area due to weaknesses in corrective actions for long-standing problems in the fire protection, secondary chemistry, and post-accident sampling system areas.” (NRC 1995a)

The September 1996 Systematic Assessments of Licensee Performance report (for January 1995 to July 1996) summarized its findings as:

“Plant performance was characterized by an excessive number of reactor trips and transients early in the assessment period....Operations performance continued to be good in plant transient response, safety sensitivity, and problem identification. Improvement was noted in shutdown operations and personnel error reduction. Weak areas were found in root cause evaluations and controls for infrequently performed evolutions.” (NRC 1996b)

The April 1998 Systematic Assessment of Licensee Performance report (for July 1996 through February 1998) summarized its findings as:

“Performance in the plant support area improved to superior, and performance in maintenance, plant operations, and engineering areas was still characterized as good. The plant operated well during the last six months of the assessment period. However, it is unclear whether this positive performance indicates a consistent trend towards improved performance.

The performance from a safety assessment and quality assurance perspective was mixed. Quality Assurance assessments were generally considered good, as were self-assessments in maintenance and most plant support areas. However, the ability to conduct meaningful self-assessments in all areas was not demonstrated, nor was the identification of root causes and resulting corrective action universally effective.” (NRC 1998c)

NRC Notices of Violation and Enforcement Actions

TVA's compliance information on Sequoyah 1 and 2 identifies the following NRC Notices of Violation issued since 1993 (TVA 1997e, NRC 1998e):

- 1993 - 4 Level III and 26 Level IV violations
- 1994 - 29 Level IV violations
- 1995 - 14 Level IV violations
- 1996 - 14 Level IV violations
- 1997 - 4 Level III violations with civil penalties of \$80,000 (this penalty was withdrawn in April 1998) and 18 Level IV violations [These were the first violations to include civil penalties since 1993, according to the TVA data.]

The NRC Notices of Violation were found in all four levels of violation dating back to 1988; since 1992 the Notices of Violation have only been at the Level III and Level IV categories.

The Level IV violations were found to fit in the following categories as stated: lack of maintenance and operating procedures, poor management, improper installation of safety controlled instrumentation, and failure to follow code. The overview of all Notices of Violation at this level fit into two classifications: a lack of management control and procedural interpretation.

The Level III violations were for failure to comply with technical specification requirements, for example: inoperation of mechanical mechanisms, mispositioned safety-system throttle valves, failure to maintain the refueling water storage tank solution temperature, and loss of reactor coolant pump seal injection flow during recovery. The Level III Notices of Violation fit into two classifications: a lack of operation of safety-related devices and failure to maintain system operations guidelines.

Sequoyah received Level I and Level II Notices of Violation that proposed imposition of civil penalties regarding alleged acts of discrimination against employees for engaging in certain protected activities in violation of 10 CFR 50.7. These Notices of Violation resulted in the imposition of a civil penalty in the amount of \$200,000. Payment of this civil penalty was made on January 26, 1994. On January 21, 1997, Sequoyah received a Level I violation and \$100,000 civil penalty for alleged acts of discrimination against an employee engaging in certain protected activities in violation of 10 CFR 50.7.

Performance Indicators

Performance Indicators for Operating Commercial Nuclear Power Reactors (NRC 1998b) presents performance indicator information for Sequoyah 1 and 2 using a peer group defined as "Westinghouse New 3- and 4-Loop Plants." The data presented in *Performance Indicators for Operating Commercial Nuclear Power Reactors* (NRC 1998b) was reviewed for the six (of eight) performance indicators that address operational activities. The following data characterizes Sequoyah 1 and 2 performance during the period from the fourth quarter of 1994 through the third quarter of 1997 in these categories:

- *Automatic Scrams While Critical* [An automatic scram is a reactor shutdown that has been initiated by the plant's safety systems.] The industry average for this indicator was less than 0.19 scrams per quarter. The performance of Sequoyah 1 and 2 reflected an average of 0.3 scrams per quarter.
- *Safety System Actuations* The industry average for this indicator was approximately 0 actuations per quarter. The performance of Sequoyah 1 and 2 reflected an average of 0.17 actuations per quarter.

- *Significant Events* The industry average for this indicator was approximately 0 significant events per quarter, while the performance of Sequoyah 1 and 2 reflected 1 significant event each during the reporting period for an average of 0.08 events per quarter.
- *Safety System Failures* The industry average for this indicator was less than one failure per quarter. The performance of Sequoyah 1 and 2 reflected 1 safety system failure for Sequoyah 1 and 0 failures for Sequoyah 2 during the 12-month reporting period.
- *Forced Outage Rate* The industry average for this indicator was less than a 20 percent forced outage rate per quarter. The performance of Sequoyah 1 reflected 1 quarter with a forced outage rate of 26 percent and the remaining 11 quarters reflected a forced outage rate of 10 percent or less, with 4 quarters having an outage rate of 0. The performance of Sequoyah 2 reflected 2 quarters with forced outage rates that exceeded the industry rate and the remaining 10 quarters reflected a forced outage rate of 4 percent or less, with six quarters having an outage rate of 0.
- *Equipment Forced Outages* The industry quarterly average for this indicator was approximately 0.3 equipment forced outages per 1,000 commercial critical hours. The performance of Sequoyah 1 included six quarters with forced outage rates caused by equipment problems that exceeded the industry rate and the remaining six quarters with a forced outage rate of 0. Sequoyah 2 performance included five quarters with forced outage rates that exceeded the industry rate and the remaining seven quarters with a forced outage rate of 0.

Also, a review of performance indicator criteria addressed Collective Radiation Exposure. The industry average for this indicator was less than 50 person-rem per quarter. The performance of Sequoyah 1 reflects four quarters with quarterly radiation exposures that exceeded the industry rate (with a peak of 165 person-rem), and the remaining seven quarters reflected exposures of 3 to 17 person-rem per quarter. The performance of Sequoyah 2 reflects two quarters with quarterly radiation exposures that exceeded the industry rate (with a peak of 213 person-rem) and the remaining nine quarters reflected exposures of 2 to 17 person-rem per quarter.

6.5.3.2 Environmental, Safety & Health (Nonnuclear) Performance

Occupational Safety and Health Act Compliance/Worker Safety Performance

As noted in TVA's summary of its Occupational Safety and Health Act performance indicators for 1992 through mid-1997 (TVA 1998a), both the Recordable Injury Rate and the Lost-Time Injury Rate were below the rates reported by industry in general and the electric industry in particular.

Environmental Performance

Sequoyah 1 and 2 had a total of three Notices of Violation issued by the Tennessee Department of Environment and Conservation from 1992 through 1997 (TVA 1997e). These notices involved the following violations:

- 1992 Notice of Violation - Subsurface release of fuel oil
- 1993 Notice of Violation - Storage of mixed waste (i.e., waste with radioactive and hazardous constituents) on site for over 90 days without a permit
- 1995 Notice of Violation - Failure to notify regulator of a waste stream that had existed since 1991

6.5.4 Bellefonte 1 and Bellefonte 2

6.5.4.1 Performance

NRC Overview

As noted earlier, the Bellefonte Nuclear Power Plant includes two partially completed reactor units. Construction was halted in 1988 when Bellefonte 1 was 90 percent complete and Bellefonte 2 was 57 percent complete. As a result, the regulatory history is limited. As noted in the TVA submittal, Bellefonte 1 and 2 had received no Notices of Violation since 1989 and have had no escalated enforcement actions, fines, or penalties during their construction history (TVA 1997e).

6.5.4.2 Environmental, Safety & Health (Nonnuclear) Performance

Occupational Safety and Health Act Compliance/Worker Safety Performance

As noted in TVA's summary of its Occupational Safety and Health Act performance indicators for the period from 1992 through mid-1997, the Recordable Injury Rate was below the rates reported by industry in general and the electric industry in particular. The data also indicates that the Lost-Time Injury Rate was 0 for the same period, which is obviously well below the rates reported by industry in general and the electric industry in particular (TVA 1997e).

Environmental Performance

As noted in their submittal (TVA 1997e), Bellefonte 1 and 2 had one Notice of Violation, a fuel oil spill, issued by the Alabama Department of Environment and Conservation in 1993.